

AMENDMENTS TO THE CLAIMS:

1. (Original) A system for depositing films on a semiconductor wafer comprising:
 - a deposition chamber operable to deposit a film on the semiconductor wafer therein according to one or more process conditions;
 - an acoustic microbalance within the deposition chamber; and
 - a controller,
 - wherein the controller is configured to provide feedback control of the one or more process conditions based on data provided at least in part by the acoustic microbalance.
2. (Original) The system of claim 1, wherein the system is configured for a sequential batch operation and the controller controls the one or more process conditions for a batch based, at least in part, on data obtained from a preceding batch.
3. (Original) The system of claim 2, wherein the controller detects a deposition process endpoint based, at least in part, on data provided by the acoustic microbalance.
4. (Original) The system of claim 1, wherein the feedback control is over an active deposition process, wherein the one or more process conditions in the active process are selectively modified.
5. (Original) The system of claim 4, wherein the controller comprises a computer system component that encodes a probabilistic dependency model relating a set of input variables that includes at least a measurement from the acoustic microbalance to one or more outputs that relate to an effect of modifying one or more process conditions.

6. (Original) The system of claim 1, wherein the acoustic microbalance is mounted on the semiconductor wafer.

7. (Original) The system of claim 1, wherein the acoustic microbalance is mounted on a control wafer.

8. (Original) The system of claim 1, wherein the acoustic microbalance comprises a surface acoustic wave device.

9. (Original) The system of claim 1, wherein the acoustic microbalance comprises a quartz crystal.

10. (Original) A system for depositing films on a semiconductor wafer comprising:

 a deposition chamber operable to deposit a film on the semiconductor wafer therein according to one or more process conditions;

 an acoustic microbalance having a cantilever within the deposition chamber; and

 a controller,

 wherein the controller is configured to detect an endpoint of a deposition process based on data provided at least in part by the acoustic microbalance, and

 wherein the controller comprises a computer system component that encodes a model or database that accounts for a difference between an extent of deposition on the cantilever and an extent of deposition on the semiconductor wafer.

11. (Original) The system of claim 10, wherein the computer system component encodes a probabilistic dependency model that the computer system

employs in accounting for the difference between the extent of deposition on the cantilever and the extent of deposition on the semiconductor wafers.

12. (Original) The system of claim 10, wherein the controller is configured to provide feedback control based on data provided at least in part by the acoustic microbalance.

13. (Original) The system of claim 10, wherein the system is configured for a sequential batch operation and the controller controls one or more process conditions for a batch based, at least in part, on data obtained from a preceding batch.

14. (Original) The system of claim 10, wherein the controller is configured to exercise feedback control over one or more process conditions.

15. (Original) The system of claim 14, wherein the controller comprises a computer system component that encodes a probabilistic dependency model relating a set of input variables that includes at least a measurement from the acoustic microbalance to one or more outputs that relate to an effect of modifying one or more process conditions.

16. (Original) The system of claim 10, wherein the acoustic microbalance is mounted on the semiconductor wafer.

17. (Original) The system of claim 10, wherein the acoustic microbalance is mounted on a control wafer.

18. (Original) The system of claim 10, wherein the acoustic microbalance comprises a surface acoustic wave device.

19. (Original) The system of claim 10, wherein the acoustic microbalance comprises a quartz crystal.

20-29. (Withdrawn)